

No. 632,998.

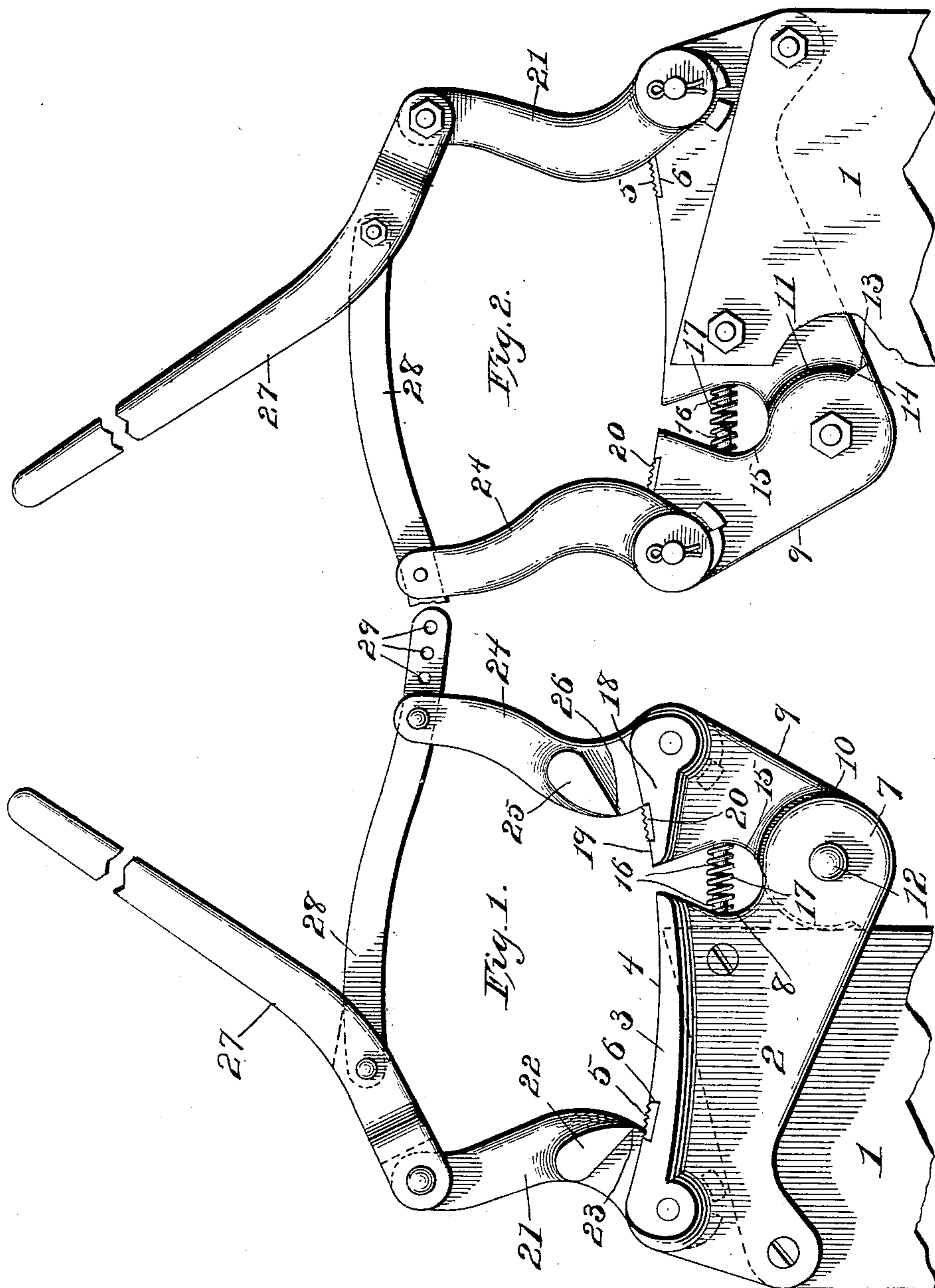
Patented Sept. 12, 1899.

M. D. GOULD, SR.

TIRE SHRINKER.

(Application filed May 13, 1899.)

No Model.)



WITNESSES

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TIRE-SHRINKER.

SPECIFICATION forming part of Letters Patent No. 632,998, dated September 12, 1899.

Application filed May 13, 1899. Serial No. 716,675. (No model.)

To all whom it may concern:

Be it known that I, MORTIMER D. GOULD, Sr., a citizen of the United States, residing at Saguache, in the county of Saguache and State of Colorado, have invented certain new and useful Improvements in Tire-Shrinkers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to a tire-shrinker; and the object of the same is to provide a device of this character that is simple in its operation and can be cheaply manufactured, being better adapted to shrink tires of malleable iron, steel, or other suitable metal of any thickness and requiring the services of one man only to effectually attain the desired result.

The invention consists of a fixed bed-plate having its top face concaved to fit the periphery of a wagon-tire and a lever fulcrumed at one end of said plate and also provided with a concaved top face, a spring being interposed between the lever and adjacent edges of the bed-plate to normally throw the said lever outwardly, combined with dogs of a specific form pivoted or movably attached to the outer portion of the bed-plate and the lever below the top concaved surfaces of the same and united at their upper ends by an operating-lever and an adjustable link-bar, which are relatively connected, the concaved top faces of the bed-plate and lever having ratchet-plates therein to bite against the outer surface of the tire rested thereon.

The invention further consists of the details of construction and arrangement of the several parts, which will be more fully hereinafter described and claimed.

In the accompanying drawings, Figure 1 is a front elevation of the improved tire-shrinker. Fig. 2 is a rear elevation of the same.

Referring to the drawings, wherein similar numerals are employed to indicate corresponding parts in the views, the numeral 1 designates a stationary support which rises from a fixed base-rest. This support is shown

broken away for the purpose of permitting the shrinker to be illustrated on a larger scale, but in practical operation is intended to be secured to any stable rest. To the upper end of said support 1 a bed-plate 2 is rigidly bolted and is formed with an upper working ledge or table 3, having a concaved working face 4. Near the outer end of the said ledge or table 3 a ratchet-block 5 is transversely positioned and fitted in a dovetailed recess 6, the opposite edges of the said ratchet-plate being formed relatively to the said recess and may be inserted or removed in a transverse direction for the purpose of replacement or sharpening of the teeth thereof.

At the inner end of the fixed bed-plate 2 is formed an extended circular fulcrum-head 7, located beyond the inner termination of the ledge or table 3, and the metal of the bed-plate below said termination of the ledge or table is cut away to provide a concavity 8. Pivotally attached to the fulcrum-head 7 is the lower end of a lever 9, the said end of the lever being recessed, as at 10, to fit snugly against the head 7, and at the rear the latter is also recessed, as at 11, (see Fig. 2,) and by this means the two parts may be closely connected by a bolt 12, extending transversely therethrough. At the rear lower part of the bed-plate, adjacent the fulcrum-head 7, and at the lower termination of the wall of the recess 11 a shoulder or stop 13 is formed and a similar structure provided in a corresponding position, as at 14, on the lower end of the lever 9. When these shoulders abut, the lever 9 is held against further movement away from the bed-plate 2, and the predetermined adjustment is such that when the said lever is moved inward toward the bed-plate the upper concaved faces of said plate and lever will aline or become continuous. The upper part of the inner edge of the lever 9 has the metal cut out to form a concave recess 15 directly opposite the concave recess 8 of the bed-plate, and from these concave recesses of the oppositely-situated parts studs or pins 16 extend inwardly and receive an intermediate repellent spring 17, which tends to force the lever 9 outwardly from the bed-plate 2. It will be observed that this spring is located above the fulcrum of the lever 9 and is therefore more effective in its repel-

lent operation, because it has less weight resistance to overcome. The upper end of the lever 9 is also formed with a short ledge or table 18, having a concaved working face 19, and near the inner termination of said ledge or table a ratchet-plate 20 is mounted and similar in all respects to the ratchet-plate 5, heretofore described.

To the outer end of the bed-plate 2 and below the concaved face 4 of the ledge or table 3 the lower end of a dog 21 is pivoted and has a projecting jaw 22 of about the width of the ledge or table and arranged at a downward angle of inclination. The lower end of the said jaw is reduced and formed into a biting edge 23, which is brought over a tire inserted on the ledge or table in firm contacting position when the dog is operated for this purpose. To the outer end of the upper portion of the lever and below the concaved face 19 of the ledge or table 18 a second dog 24 has its lower end pivotally attached and is also provided with a projecting jaw 25 of the same form as the jaw 22, but reversely inclined to the latter and formed with a lower biting edge 26, which is also brought over the adjacent concaved face 19 of the tire rested thereon in firm engaging position when the dog 24 is moved inward.

An operating-lever 27 is pivotally connected to the upper end of the dog 21, and to said lever above its point of attachment to the dog the end of a link-bar 28 is movably attached and extends over and is pivotally connected to the upper end of the dog 24. The end of the said link-bar 28 which is attached to the dog 24 has a series of apertures 29 formed in the same for the purpose of regulating the adjustment or movement of the said dog 24 to accommodate various thicknesses of tires, and the absence of features of a similar character in connection with the dog 21 is due to the fact that the movement of this latter dog can be directly controlled by the operation of the lever 27. It will be observed that the link-bar 28 acts as a draw-bar, and both it and the lever 27 are above the bed-plate and lever 9 and therefore will not interfere in any manner with the operation of the dogs or the ready insertion or removal of the tire, and particularly in view of the fact that the jaws 22 and 25 of the dogs are projected from one side and stand over the concaved faces of the bed-plate and lever, thus permitting the tire to be positioned or removed in a lateral direction and without interfering with the operation of the lever 27 and link-bar 28.

In operation the tire is rested on the concaved faces 4 and 19 of the bed-plate 2 and lever 9 and the operating-lever 27 is drawn toward the left, which first pulls the dog 24 over in the same direction through the medium of the link-bar 28. When the biting edge 26 of the jaw 25 strikes the tire, a resistance will immediately be set up, and the lever 9 is drawn toward the adjacent end of

the bed-plate 2, and simultaneously the dog 21 will be moved inwardly and its jaw 22 and the biting edge 23 thereof brought down upon the tire and the latter shrunk, being held from slipping by the ratchet-plates 5 and 20, respectively, on the said bed-plate and lever, and such operations ensue as are ordinarily carried on in tire-shrinking. When the operating-lever 27 is reversed or moved toward the right, the dog 24 and its jaw 25 are raised first, and the dog 21 and its jaw 22 hold the tire in place while the former dog is moving away, and in the event that it is desired to further shrink the tire the first operation can be again pursued without removing the latter.

By fastening the dogs below the working surfaces of the bed-plate and lever 9 a descent of the same causes a movement nearer together, and when raised the dogs are conversely wider apart, and hence a thick tire can be shrunk as easily as a thin one and the rapidity of movement can be regulated by adjusting the link-bar 28. In most all the tire-shrinkers as heretofore constructed the dogs are fastened above the working surfaces and move in directions opposite to the present form—that is, as the dogs descend they shift wider apart and come nearer together as they are raised, and in shrinking thick tires they are nearer together than when shrinking thin tires. This is very objectionable, as there is more heat in a thick tire than in a thin one, and the dogs to be effective in their work should be further apart. The arrangement of the parts is such in the present device that the effective operation of the dogs never varies when different thicknesses of tires are placed thereunder for shrinking, and in releasing the dogs the repellent spring 17 assists materially in throwing out the lever 9 and the dog carried thereby and previous to the elevation of the dog 21 or the jaw 22 of the latter from the adjacent surface of the tire, and when repeated operations on the same tire are desired to be carried on without removing it from the shrinker the said spring again comes into play to assist in quickly throwing the lever 9 outwardly and permit a new grip to be taken on the outer part of the tire, and the device then operates after the manner of a ratchet.

The ratchet-plates 5 and 20 will be preferably made of harder metal than the parts that support them, and the jaws 22 and 25 will have hard metallic plates 30, mounted in the undersides thereof, which may be replaced or their engaging edges sharpened, and are so fitted into said jaws as to be virtually continuous therewith.

Changes in the proportions, dimensions, and minor details of construction of the several parts might be resorted to without departing from the spirit of the invention or sacrificing any of the advantages thereof.

Having thus described the invention, what is claimed as new is—

1. In a tire-shrinker, the combination of a

fixed bed-plate, a lever pivoted thereto, the lever and bed-plate having upper concaved faces, dogs pivoted to the bed-plate and lever below the concaved faces thereof and having projecting jaws extending over the concaved faces, and means for operating the said dogs and lever, the dogs moving toward each other in their descent toward the bed-plate and lever and separating when released.

2. In a tire-shrinker, the combination of a bed-plate, a lever pivoted to said bed-plate, the upper portions of the bed-plate and lever having tables or ledges with concaved faces, transversely-positioned ratchet-plates in the said concaved faces, dogs pivoted to the bed-plate and lever below the level of the tables or ledges and having projecting jaws arranged at an angle of inclination in reverse directions on opposite dogs and provided with lower biting edges, a lever attached to one dog, and a link-bar connected to said lever and adjustably attached to the opposite dog.

3. In a tire-shrinker, the combination of fulcrum-head, a bed-plate, formed with a stop-shoulder adjacent the fulcrum-head, a

lever pivoted on said fulcrum-head and having a corresponding stop-shoulder, the adjacent faces of the lever and bed-plate being formed with concave recesses, studs extending into said recesses, a spring around said studs and located in the recesses, concaved-faced ledges in the upper portions of the bed-plate and lever, transversely-positioned ratchet-plates in the said concave faces, dogs pivoted to the bed-plate and lever below the level of the said ledges and having projecting jaws arranged at an inclination in reverse directions on opposite dogs, a lever pivotally attached to one dog, a link-bar connected to the other and means for adjusting said link-bar with relation to said dog, the opposite end of the link-bar being pivotally connected to said lever, all substantially as shown and described.

In testimony whereof I affix my signature in presence of two witnesses.

MORTIMER D. GOULD, SR.

Witnesses:

J. N. WILLIAMS,

B. P. STUBBS.